

Proceedings of the 8th meeting of the
**NORTHERN EUROPEAN NETWORK FOR WOOD
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September 13-14, 2012
Kaunas, Lithuania

Edited by Antanas Baltrušaitis and Kristina Ukvalbergienė



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CHARACTERISTICS OF THE HEMP FIBER MODIFIED PLYWOOD

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ABSTRACT

With the growth of the environmental pollution and the usage volumes of traditional natural resources, more and more attention is paid to the use of environmentally friendly materials. Scientists of the world are working on acquiring new materials and improving the characteristics of the existent ones. New material fusions have been created and as a result composite materials with better or even completely different characteristics have been developed. During the production of the new generation source materials and equipment, a lot of attention is paid to the environmental impact of the process and to the recycling of the products. More than 100 years ago the invention of the plywood peeling and later also carving hardware revolutionized the woodworking sector. It opened the way to the production of a new material – plywood. With the ever growing usage of plywood in the national economy, the necessity arises to increase its physically mechanical characteristics and reduce production costs. Plywood with different coatings that change the mechanical characteristics of its surface has already been developed and introduced into production. One of the ways for development is to create composite materials – supplement plywood with hemp fibre fabric.

The paper reflects the results of a research on a five-layer birch plywood composite material with hemp fabric reinforcement. There is a research on the optimum proportions of the glues, gluing parameters and their influence on the final product. Tests of the physically mechanical characteristics of the material patterns have been carried out and the acquired results have been processed and compared with the existent standards. The average strength index of the material has increased by 13.2%, and the guaranteed index has increased by 42.5% compared to the control patterns.

A new use for the hemp fibre has been found. As a result a new, environmentally friendly material with high physically mechanical characteristics has been developed, which and can be used to produce plywood and bent glued wood constructions.

Keywords: plywood, hemp, plywood composite material.

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